



# Development of a Methanol Fuel Formulation for Use in Both Light- and Heavy-Duty Vehicles

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## Performance Period

7/95-7/97

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## Objective

To identify and demonstrate the best methanol fuel formulation(s) for current and future light-duty and heavy-duty vehicles.

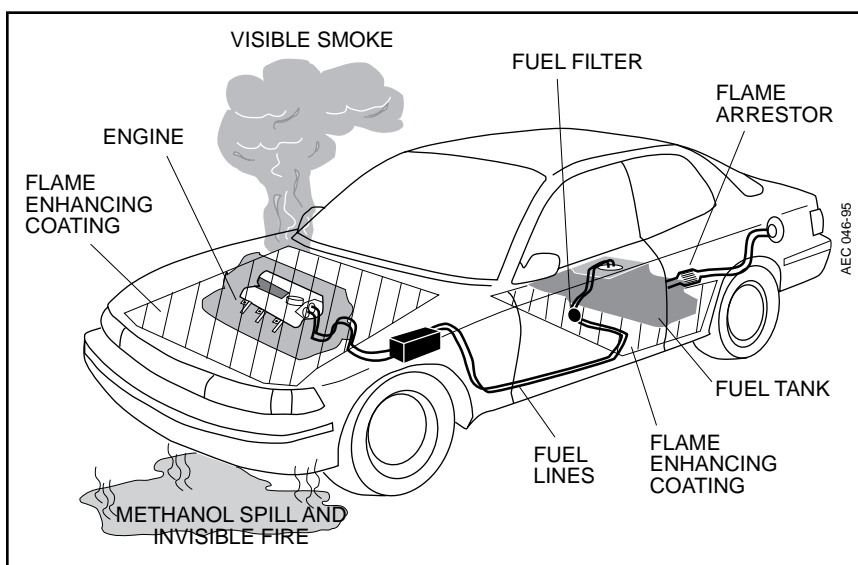


Figure 1: Hardware developments may be alternatives to luminosity and vapor pressure additives

## Approach

The first phase of the project will determine whether a single universal methanol fuel formulation can be developed to perform acceptably in light-duty and heavy-duty methanol vehicles. Performance requirements include cold starting and warmup driveability, lubricity, tank ullage flammability, flame luminosity, chemical compatibility, and emissions. If a universal methanol formulation can be identified in Phase I, Phase II will test vehicles and engines to verify the results of the feasibility study. If a universal methanol fuel formulation cannot be identified in Phase I, Phase II will identify a method to produce two formulations conveniently produced at the refueling station from a common source of stored methanol.

## Accomplishments

The project has just begun and has prompted several discussions and a meeting between Acurex Environmental and NREL. In addition, a literature search of books and articles on relevant subjects relating to this project has begun.



## Future Direction

Task 1 will involve a literature review and position assessment of various organizations such as EPA, DOE, CARB, CEC, National Highway Traffic Safety Administration, Ministry of International Trade and Industry, Japan Automotive Research Institute and Transport Canada. The literature search will provide a broad overview of relevant public health issues and an assessment of state-of-the-art methanol-fueled vehicle technology. Task 2 will assess safety risks associated with various methanol fuel formulations and include an engineering assessment of anticipated effects on engine/vehicle emissions and performance. The final task of Phase I will bench test the proposed fuel blends. The bench tests will include flame luminosity, vapor space flammability, vapor pressure, lubricity, and corrosivity testing. Phase I is expected to be completed in July 1996.

## Publications

None to date.

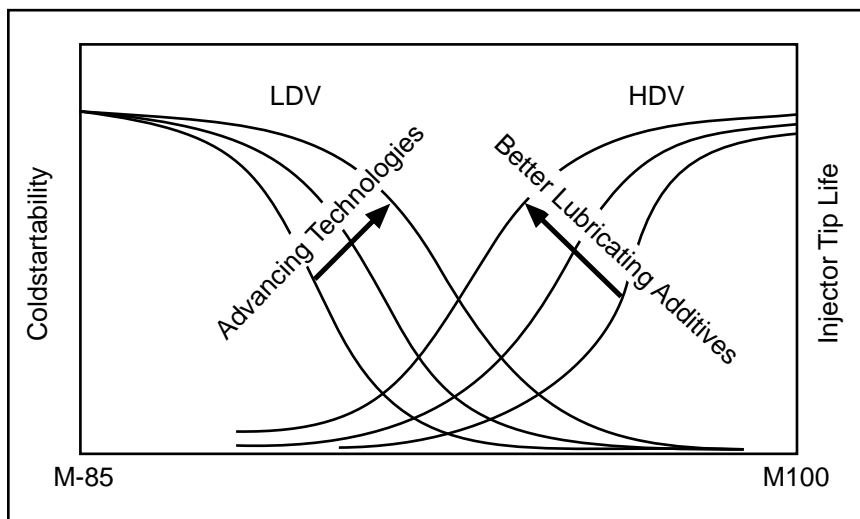


Figure 2: Light-duty vehicle cold-start and heavy-duty vehicle injector plugging trade-offs as a function of methanol formulation